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| 09/475,991 | 12/30/1999 | KENICHIRO SAKAI | 991522 | 7159 |
| 23850 | 7590 | 06/08/2006 | EXAMINER | |
| ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP | | | LE, BRIAN Q | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------|-------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/475,991 | SAKAI ET AL. | |
| | Examiner Brian Q. Le | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 March 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 2-11 and 13-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 8,9,15,16,18-28,32-35 and 38-40 is/are allowed.
- 6) Claim(s) 2-7, 10-11, 13-14, 17, 29-31, and 36-37 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/28/2006 has been entered.

Response to Amendment and Arguments

2. Applicant's arguments with regard to claims 2-7, 10-11, 13-14, 17, 29-31 and 36-37 have been fully considered, but are not considered persuasive because of the following reasons:

Regarding claims 2-7, 10-11, 13-14, 17, 29-31 and 36-37 rejected under 35 U.S.C. 112, first paragraph failing to comply with the written description requirement. The Applicant cited the support (page 15, lines 10-19 and page 18, lines 6-20) for the limitation "overlapping detecting unit further detects an overlapping position based on a character recognition result on a low graphics ratio region in a first document". The Applicant further added the limitation "wherein the low graphic ratio region is a region of a plurality of regions that hold more line images found to contain only character images" to further give the definition of low graphic ratio. The Applicant believes (page 24 of Remarks) that by adding the new limitation along with the cited support would overcome the 35 U.S.C. 112, first paragraph rejection. The Examiner respectfully disagrees. First, there is no support in the original disclosure for the new limitation or the definition of low graphic ratio region defined in the claim. Also, the cited locations do not have the support for both limitations. Thus, the rejection is maintained.

The Applicant argues (page 26 of the Remarks) that the combined references, Nakabayashi and Nakamura et al., do not teach “the overlapping detecting unit further detects an overlapping position based on a character recognition result of a low graphics ratio region in a first document of the plurality of document images, and a character recognition result of a corresponding region in a second document of the plurality of document images”. The Examiner respectfully disagrees. The Applicant is advised to refer back to previous Office Action, teaching and explanation of claim 2 and revised Action below for a comprehensive explanation.

Thus, the rejections of all of the claims are maintained.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2-7, 10-11, 13-14, 17, 29-31, and 36-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding independent claims 2,3, 13-14, 17, 29, and 36-37, the Applicant does not clearly have the support for this newly added limitation specifically “overlapping detecting unit further detects an overlapping position based on a character recognition result of a low graphics ratio region in a first document” with respect to character recognition result of a corresponding to a second document and “wherein the low graphic ratio is a region of a plurality of regions that hold more line images found to contain only

character images". In addition, the Applicant does not provide a definition of "a low graphics ration region" (in the specification) when detecting an overlapping position based on a character recognition result of a low graphics ratio region.

Claims not specifically addressed depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-7, 10-11, 13-14, 17, 29-31 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,675,672 to Nakabayashi and Japanese Patent Publication 10-69536 to Nakamura et al. (hereinafter "Nakamura").

As to claim 2, Nakabayashi discloses a document image processing device, comprising:

character region extracting unit extracting character regions respectively from a plurality of document images which are partitioned and read (Fig.1, elements 28 and 30; Fig.4);

overlapping detecting unit detecting overlapping of the plurality of document images (Fig.1, element 12; column 4, lines 23-31); and

image merging unit merging the plurality of document images at an overlapping position detected by said overlapping detecting unit (column 5, lines 46-47; column 6, lines 3-5), wherein the overlapping detecting unit further detects an overlapping position based on a character recognition result of a low graphics ratio region in a first document of the plurality of document images, and a character recognition result of a corresponding in a second document of the plurality of document images (The process of merging overlapping images by align and linking elements by removes duplication/low graphics ratio region) (abstract and FIG. 1, elements 20 and 24).

Nakabayshi's discloses that the overlapping detecting unit detects the overlapping based on character recognition results, but does not disclose detecting character regions whose matching degrees are high by making a comparison between positions and sizes of the respective character regions extracted by said character region extracting unit, and detecting an overlapping of the plurality of document images based on positions of the detected character regions whose matching degrees are high. However, this is well known in the art as evidenced by Nakamura. Nakamura teaches detecting character regions whose matching degrees are high by making a comparison between positions and sizes of respective character regions extracted by an character region extracting unit (Figs.1, 2 and 3; paragraphs [0021], [0022] and [0023]), and detecting an overlapping of the plurality of document images based on positions of the detected character

regions whose matching degrees are high (paragraph [0026]). Also, Nakamura further teaches low graphic ratio region is a region of a plurality of regions that hold more line images found to contain only character images (rectangles of image with more lines) ([0017] and [0018]). Nakabayashi and Nakamura are from the same field of endeavor. Nakamura's device provide the advantage of high speed processing (Nakamura, paragraph [0014]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Nakabayashi's device according to Nakamura's teaching, as described above.

Regarding claim 3, Nakabayashi discloses a document image processing device, comprising:

character region extracted unit extracting character regions respectively from a plurality of document images which are partitioned and read (Fig.1, elements 28 and 30; Fig.4);

character recognizing unit recognizing character images within the character regions extracted by said character region extracting unit (Fig.1, element 12; column 4, lines 23-31);

overlapping detecting unit detecting an overlapping of the plurality of document images based on character recognition results of the respective document images, which are obtained by said character recognizing unit (column 5, lines 34-39); and

image merging unit merging the plurality of document images at an overlapping position detected by said overlapping detecting unit (column 5, lines 46-47; column 6, lines 3-5), wherein the overlapping detecting unit further detects an overlapping position based on a character recognition result of a low graphics ratio region in a first document of the plurality of document images, and a character recognition result of a corresponding in a second document of the plurality of document images (The process of merging overlapping images by align and linking

elements by removes duplication/low graphics ratio region) (abstract and FIG. 1, elements 20 and 24).

Nakabayashi does not disclose that the overlapping detecting unit detects the overlapping based also on a result of a comparison between positions and sizes of the respective character regions in the plurality of document images, which are extracted by said character region extracting unit. However, this is well known in the art as evidenced by Nakamura. Nakamura teaches detecting character regions whose matching degrees are high by making a comparison between positions and sizes of respective character regions extracted by an character region extracting unit (Figs.1, 2 and 3; paragraphs [0021], [0022] and [0023]). Nakabayashi and Nakamura are from the same field of endeavor. Utilizing Nakamura's technique in Nakabayashi would provide for more accurate overlap determination, especially if two different-sized character regions were not overlapping, but had the same characters. Therefore, it would have been obvious to one of ordinary skill in the art to modify Nakabayashi's device according to Nakamura's teaching, as described above.

As to claim 4, Nakabayashi discloses the document image processing device according to claim 2, wherein said character region extracting unit extracts a plurality of character regions in line images in the plurality of document images (note in Fig.4, block 82, for example, there are number of character regions in the line of characters "recognize 3023 character").

As to claim 5, Nakabayashi discloses the document image processing device according to claim 2, wherein said overlapping detecting unit detects as an overlapping position of line images whose matching degrees are high by making a comparison between character regions in line images in a direction from edges of the plurality of document images to their centers (note in

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Fig.4, block 82, for example, the line image "recognize 3023 character" goes from the left edge to center in the horizontal direction; note also column 5, lines 33-39, indicating comparison is between character images in a direction from top and bottom edges).

As to claim 6, Nakabayashi discloses the document image processing device according to claim 2, wherein: the plurality of document images which are partitioned and read are two document images; and said overlapping detecting unit detects an overlapping position of the two document images by making a comparison between character regions in line images in the two document images (Fig.1, element 32; Figs. 4 and 5; column 5, lines 36-37).

With regard to claim 7, Nakabayashi discloses the document image processing device according to claim 2, wherein said overlapping detecting unit regards as detection targets character regions in particular regions in the plurality of document images (in Figs.4 and 5, note that the targets are the character regions in particular regions).

Referring to claim10, Nakabayashi discloses the document image processing device according to claim 1, wherein said overlapping detecting unit detects an overlapping position only in a particular direction (note in Fig.4, with the joining of two images vertically, the overlapping position is detected along the vertical direction, i.e., the from the top edge of one image, and from the bottom edge of the other image).

Regarding claim 11, Nakabayashi discloses the document image processing device according to claim 1, wherein said character region extracting unit extracts a region enclosed by a tetragon circumscribed to a character image as a character region (note in Fig.4, the "tetragon" i.e., the rectangle, surrounding the character region).

Regarding claim 13, remarks analogous to those presented above for claim 2 are applicable.

Regarding claim 14, remarks analogous to those presented above for claim 3 are applicable.

As to claim 17, Nakabayashi discloses a document image processing device comprising:
region partitioning unit partitioning a plurality of document images which are partitioned and read into a plurality of regions (Fig.4; Fig.1, elements 28 and 30 obtain partitioned images of the document 32);

line image extracting unit extracting line images respectively from the plurality of regions partitioned by said region partitioning unit (Fig.4; note the lines of character which are extracted in elements 82 and 84);

overlapping detecting unit detecting an overlapping position of the plurality of document images based on character regions whose matching degrees are high by making a comparison between character regions in the line images in the respective regions, which are extracted by said line image extracting unit (comparison is made between the regions based on the coded characters, column 5, lines 36-37, column 2, lines 42-43); and

image merging unit merging the plurality of document images at the overlapping position detected by said overlapping detecting unit (column 5, lines 46-47; column 6, lines 3-5), wherein the overlapping detecting unit further detects an overlapping position based on a character recognition result of a low graphics ratio region in a first document of the plurality of document images, and a character recognition result of a corresponding in a second document of the plurality of document images (The process of merging overlapping images by align and linking

elements by removes duplication/low graphics ratio region) (abstract and FIG. 1, elements 20 and 24).

Nakabayashi does not disclose that the overlapping detecting unit detects the plurality of character regions whose matching degrees are high, by making a comparison between positions and sizes of a plurality of character regions. However, this is well known in the art as evidenced by Nakamura. Nakamura teaches detecting a plurality of character regions whose matching degrees are high by making a comparison between positions and sizes of respective character regions extracted by an character region extracting unit (Figs.1, 2 and 3; paragraphs [0021], [0022] and [0023]).. Nakabayashi and Nakamura are from the same field of endeavor. Nakamura's device provide the advantage of high speed processing (Nakamura, paragraph [0014]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Nakabayashi's device according to Nakamura's teaching, as described above.

As to claim 29, as explained in claims 2 and 3 regarding the overlapping detecting unit detects overlapping position based on a character recognition result of a low graphics ratio region ... corresponding region the the second document, Nakabayashi further discloses a document image processing device, comprising:

region partitioning unit partitioning first and second document images which are partitioned and read into a plurality of vertical and horizontal regions (Fig.4; Fig.1, elements 28 and 30 obtain partitioned images of the document 32; column 5, lines 62-65);

line image extracting unit extracting line images containing only character images from the plurality of regions partitioned by said region partitioning unit (Fig.4; note the lines of character which are extracted in elements 82 and 84);

overlapping detecting unit detecting an overlapping position between the first and second document images based on character regions whose matching degrees are high by making a comparison between character regions of a line image in a region containing a plurality of line images, of a plurality of regions in the first document image extracted by said line image extracting unit and a character region of a line image in a corresponding region of the second document image (comparison is made between the regions based on the coded characters, column 5, lines 36-37, column 2, lines 42-43);

image merging unit merging the first and second document images at the overlapping position detected by said overlapping detecting unit (column 5, lines 46-47; column 6, lines 3-5).

Nakabayashi does not disclose that the overlapping detecting unit detects the plurality of character regions whose matching degrees are high, by making a comparison between positions and sizes of a plurality of character regions. However, this is well known in the art as evidenced by Nakamura. Nakamura teaches detecting a plurality of character regions whose matching degrees are high by making a comparison between positions and sizes of respective character regions extracted by an character region extracting unit (Figs.1, 2 and 3; paragraphs [0021], [0022] and [0023]). Nakabayashi and Nakamura are from the same field of endeavor.

Nakamura's device provide the advantage of high speed processing (Nakamura, paragraph [0014]). Therefore, it would have been obvious to one of ordinary skill in the art to modify Nakabayashi's device according to Nakamura's teaching, as described above.

Nakabayashi also does not disclose a setting unit allowing a setting of whether or not to automatically merge the plurality of document images on a display screen. Essentially, this amounts to a control for displaying or not displaying the merged images. This is not seen as a

patentable difference from Nakabayashi. To display or not display a result of processing is considered a decision based on designer or user preference. Further, the Examiner takes Official Notice that units for permitting or not permitting a display of a processing result is well known. It would have been obvious to one of ordinary skill in the art to employ such a unit to allow a user to view merged images, if he or she so desired (to check the result prior to printing for example), or not display the merged images (to save time for example).

With regard to claim 30, the particular manner in which the setting unit is implemented (i.e., on-screen button, switch, etc.) is considered to be determined by designer preference.

Claim 31 requires that said setting unit is one with which a user can set the number of merging sheets of document images. This is not considered a patentable distinction. In any scanning system, the user determines the desired number of scanned document images. This in turn, would determine the number of sheets to merge. To have a unit to allow a user to set this number is considered obvious.

Regarding claim 36, remarks analogous to those presented above for claim 2 are applicable, in light of the computer system shown in Nakabayashi's Fig.7.

Regarding claim 37, remarks analogous to those presented above for claim 3 are applicable, in light of the computer system shown in Nakabayashi's Fig.7.

Allowable Subject Matter

8. Claims 8-9, 15-16, 18-28, 32-35 and 38-40 are allowed.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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May 30, 2006